

What is claimed is:

1 1. An enclosed power clamp comprising:
2 housing means having at least two high-strength planar plates
3 spaced from one another enclosed within two lower-strength members, the
4 at least two high-strength planar plates for defining an enclosed path
5 including an elongate guide slot, and a pair of coaxial apertures extending
6 perpendicular to and offset from said elongate guide slot;
7 internal means operably engageable with said elongate guide
8 slot within said housing means for moving along said enclosed path between
9 first and second end limits of travel; and
10 means for securing said plates together to form a unitary
11 structure.

1 2. The clamp of claim 1 further comprising:
2 the at least two high-strength planar plates including at least
3 two replaceable wear blocks for operably engaging the internal means when
4 in one of the first and second end limits of travel.

1 3. The clamp of claim 1 further comprising:
2 the at least two high-strength planar plates formed of steel; and
3 the two lower-strength members formed of aluminum.

1 4. The clamp of claim 1 further comprising:
2 the at least two high strength planar plates each including a
3 plate portion and a beam portion operably engaged with respect to each
4 other, the plate portion having a top surface and the beam portion having a
5 bottom surface, the elongate guide slot formed at least in part by the top
6 surface of the plate portion and the bottom surface of the beam portion.

1 5. The clamp of claim 1 further comprising:
2 the elongate guide slot forming a closed loop.

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1 6. The clamp of claim 1 further comprising:
2 the internal means including at least one pin slidingly
3 engageable with the elongate guide slot.

1 7. The clamp of claim 1 further comprising:
2 the internal means including means for rotating a clamping arm
3 of the enclosed power clamp.

1 8. The clamp of claim 1 further comprising:
2 the securing means including at least one pin engageable with
3 the at least two high-strength planar plates and the two lower strength
4 members.

1 9. A method for manufacturing an enclosed power clamp
2 comprising the steps of:
3 assembling at least two high-strength planar plates spaced
4 from one another enclosed within two lower-strength members to form
5 housing means, the at least two high-strength planar plates for defining an
6 enclosed path including an elongate guide slot, and a pair of coaxial
7 apertures extending perpendicular to and offset from said elongate guide
8 slot;
9 operably engaging internal means with said elongate slot within
10 said housing means for moving along said enclosed path between first and
11 second end limits of travel; and
12 securing said housing means together to form a unitary
13 structure.

1 10. The method of claim 9 further comprising step of:
2 accommodating wear when the internal means is in one of the
3 first and second end limits of travel, wherein the at least two high-strength

4 planar plates include at least two replaceable wear blocks for operably
5 engaging the internal means.

1 11. The method of claim 9 further comprising the step of:
2 operably engaging a clamping pin with to the pair of coaxial
3 apertures, the clamping pin engageable with a clamping arm external to the
4 housing means.

1 12. The method of claim 9 wherein the assembling step further
2 comprises the step of:
3 engaging a plate portion having a top surface to a beam portion
4 having a bottom surface to form at least one of the high strength planar
5 plates, the top surface and bottom surface defining at least part of the
6 elongate guide slot.

1 13. The method of claim 9 wherein the engaging step further
2 comprises the step of:
3 mounting linkage means with respect to the elongate guide slot
4 and disposed between the at least two high-strength planar plates, the
5 linkage means operable to engage a clamping arm of the enclosed power
6 clamp.

1 14. An enclosed power clamp manufactured according to the
2 method of claim 21 comprising:
3 housing means having at least two high-strength planar plates
4 spaced from one another enclosed within two lower-strength members, the
5 at least two high-strength planar plates for defining an enclosed path
6 including an elongate guide slot, and a pair of coaxial apertures extending
7 perpendicular to and offset from said elongate guide slot;
8 internal means operably engageable with said elongate guide
9 slot within said housing means for moving along said enclosed path between

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10 first and second end limits of travel; and
11 means for securing said housing means together to form a
12 unitary structure.

1 15. The clamp of claim 14 further comprising:
2 the at least two high-strength planar plates including at least
3 two replaceable wear blocks for operably engaging the internal means when
4 in one of the first and second end limits of travel.

1 16. The clamp of claim 14 further comprising:
2 the at least two high strength planar plates each including a
3 plate portion and a beam portion operably engaged with respect to each
4 other, the plate portion having a top surface and the beam portion having a
5 bottom surface, the elongate guide slot formed at least in part by the top
6 surface of the plate portion and the bottom surface of the beam portion.

1 17. The clamp of claim 14 further comprising:
2 the elongate guide slot forming a closed loop.

1 18. The clamp of claim 14 further comprising:
2 the securing means including at least one pin engageable with
3 the at least two high-strength planar plates and the two lower strength
4 members.

1 19. In an enclosed power clamp having a housing enclosing a
2 slide block connectible to a prime mover for driving the slide block in
3 movement between first and second end limits of travel along an elongate
4 guide slot formed in the housing, link means connected to the slide block at
5 one end and a pivot pin at another end for converting linear movement of the
6 slide block into rotational movement of the pivot pin, the pivot pin rotatably
7 supported in the housing and connectible to a clamp arm for driving the

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8 clamp arm between a clamped position and a released position, the
9 improvement comprising:

10 said housing formed of at least two high-strength planar plates
11 spaced from one another and enclosed within two low-strength members,
12 wherein the at least two high-strength planar plates define an enclosed path
13 for receiving said slide block, each plate having first and second major
14 opposite parallel side surfaces spaced from one another with at least one
15 transverse edge surface extending between said first and second side
16 surfaces defining an outer perimeter of each plate, each of said two planar
17 plates having at least one transverse surface substantially perpendicular to
18 at least one of said first and second side surfaces to form at least a portion
19 of said elongate guide slot; and
20 means for securing said plates to one another to form a unitary
21 structure.

1 20. The improvement of claim 19 further comprising:

2 the at least two high-strength planar plates including at least
3 two replaceable wear blocks for operably engaging the internal means when
4 in one of the first and second end limits of travel.

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